

WHAT IS CLAIMED IS:

1. A thrust control valve comprising:

a nozzle provided with a gas supply chamber in which a propulsion gas is supplied, a gas jetting chamber through which the propulsion gas is jetted, and a connecting passage coaxially connecting the gas supply chamber and the gas jetting chamber, the nozzle having an upstream inner surface defining the gas supply chamber and a downstream inner surface defining the gas jetting chamber; and

a plug inserted into the gas supply chamber, the connecting passage and the gas jetting chamber so as to be axially movable, the plug having an upstream outer surface facing the upstream inner surface to define an upstream passage on a side of the gas supply chamber together with the upstream inner surface, and a downstream outer surface facing the downstream inner surface to define a downstream passage on a side of the gas jetting chamber together with the downstream inner surface, the plug being configured to be capable of controlling a thrust to be produced by jetting the propulsion gas by simultaneously changing sectional areas of the upstream passage and the downstream passage by an axial movement of the plug.

2. The thrust control valve according to claim 1, wherein the plug has an upstream pressure-receiving part on the side of the gas supply chamber and a downstream pressure-receiving part on the side of the gas jetting chamber, the upstream pressure-receiving part being configured to be capable of moving in the gas supply chamber and the connecting passage and having an upstream pressure-receiving surface on which a pressure of the propulsion gas acts to produce a force that acts in a direction from the side of the gas jetting chamber toward the side of the gas supply chamber, and the downstream pressure-receiving part being configured to

be capable of moving in the gas jetting chamber and the connecting passage and having a downstream pressure-receiving surface on which a pressure of the propulsion gas acts to produce a force that acts in a direction from the side of the gas supply chamber toward the side of the gas jetting chamber.

3. The thrust control valve according to claim 2, wherein the downstream pressure-receiving surface has an inclined surface which is inclined so as to separate from an axis of the plug along an axial direction away from the upstream pressure-receiving part.

4. The thrust control valve according to claim 2, wherein the downstream pressure-receiving surface has a first inclined surface which is inclined so as to approach the downstream inner surface along an axial direction away from the upstream pressure-receiving part and a second inclined surface which is inclined so as to separate from the downstream inner surface along the axial direction away from the upstream pressure-receiving part.

5. The thrust control valve according to claim 2, wherein the upstream pressure-receiving surface of the plug is inclined so as to separate from an axis of the plug along an axial direction away from the side of the gas jetting chamber.

6. The thrust control valve according to claim 2, wherein the upstream pressure-receiving part of the plug and the downstream pressure-receiving part of the plug are connected via a straight connecting part.